IN THE CLAIMS

Please amend the claims as follows:

Claims 1-9 (Canceled).

Claim 10 (Currently amended): A digital processing apparatus of audio signals, configured for treatment of subjects suffering from audio-phonatory disorders, comprising:

an analog audiofrequency signal input configured to provide an audiofrequency input signal;

an analog-digital encoder;

an envelope detector;

a digital limiter;

a multiplier;

a synthesizer; and

a digital-to-analog converter,

wherein the analog-digital encoder is configured to reflect the analog audiofrequency input signal by a first sequence of digital values;

wherein the envelope detector is configured to establish, from the first sequence of digital values, a second sequence of digital values reflecting an envelope of the audiofrequency input signal;

wherein the digital limiter is configured to establish a third sequence of limited digital values, from the second sequence of digital values;

wherein the multiplier is configured to establish a sequence of modulated emission frequency values according to values of the third sequence of limited digital values;

wherein the synthesiser is configured to provide a digital audio signal from the sequence of modulated emission frequency values; and

wherein the digital-to-analog converter is configured to produce an analog output signal from the digital audio signal.

Claim 11 (Currently amended): A digital processing apparatus according to claim 10, wherein the digital limiter is further configured to establish the third sequence of limited digital values in accordance with a first law laid down so that the modulated emission frequency values are contained between a selected lower frequency value and a selected upper frequency value.

Claim 12 (Currently amended): A digital processing apparatus according to claim 11, wherein the first law takes into account the values of the third sequence of limited digital values and a chosen threshold amplitude value.

Claim 13 (Currently amended): A digital processing apparatus according to claim 12, wherein the first law is a function of:

a threshold value,

~~the~~ a logarithm of the selected lower frequency value, and

the a logarithm of the selected upper frequency value.

Claim 14 (Currently amended): A digital processing apparatus according to claim 13, wherein the first law calculates each value of the third sequence of limited digital values as being the ratio of a value of the second sequence of digital values over the chosen threshold

amplitude value raised to a power equal to the ratio of the logarithm of the ratio of the ~~first~~ upper selected and ~~second~~ lower selected frequency values, over a threshold value.

Claim 15 (Currently amended): A digital processing apparatus according to claim 11, wherein the multiplier provides the product of the values of the third sequence of limited digital values and the upper selected frequency value.

Claim 16 (Currently amended): A digital processing apparatus according to claim 11, wherein the upper selected frequency value is selected to be close to a highest frequency audible by the subject by upper values.

Claim 17 (Currently amended): A digital processing apparatus according to claim 10, wherein for each value of the sequence of modulated emission frequency values, the synthesiser develops a corresponding fundamental frequency signal with at least one harmonic.

Claim 18 (Previously presented): A digital processing apparatus according to claim 10, further comprising a digital low pass filter between the envelope detector and the digital limiter.